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Implications of Federal Renewable Energy Portfolio Standard and Carbon Legislation

Public Service Commission of South Carolina

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Implications of Federal Renewable Energy Portfolio Standard and Carbon Legislation

Agenda

1. Climate Change Policy Considerations
2. Climate Change Legislation
3. Utility Response to Potential Carbon Legislation
4. Renewable Portfolio Standards Legislation
5. Federal Renewable Portfolio Standards - Implications for South Carolina




Climate Change Policy Considerations

Eileen Robinson, Director

EH&S Policy Integration

Topics for Discussion

- Climate Change Policy Options
- Cap and Trade Programs – The Clean Air Act Experience
- Key Decisions for Climate Change Cap and Trade Program

Climate Change Policy Options

- Carbon Tax
  - Applied to a ton of CO_2 emitted
  - Cost certainty for the program
  - Level of reductions uncertain
  - Covers multiple sectors
  - Politically challenging

- Cap and Trade Program
  - Sets CO_2 emissions at a specific level
  - Can cover multiple sectors
  - No cost certainty
  - Market based – allowing for most cost effective reductions first
  - Experience with program type

Cap and Trade Programs - The Clean Air Act Experience

- The Clean Air Act Amendments of 1990 – first experience with a cap and trade program
- Electric sector only
- Legislation set the level of emissions allowed
- One allowance (emission credit) turned in to the Environmental Protection Agency for every ton emitted
- Allowances granted at no cost based on heat input (emissions) during a recent historical period.
- More cost effective approach than a “command and control” alternative

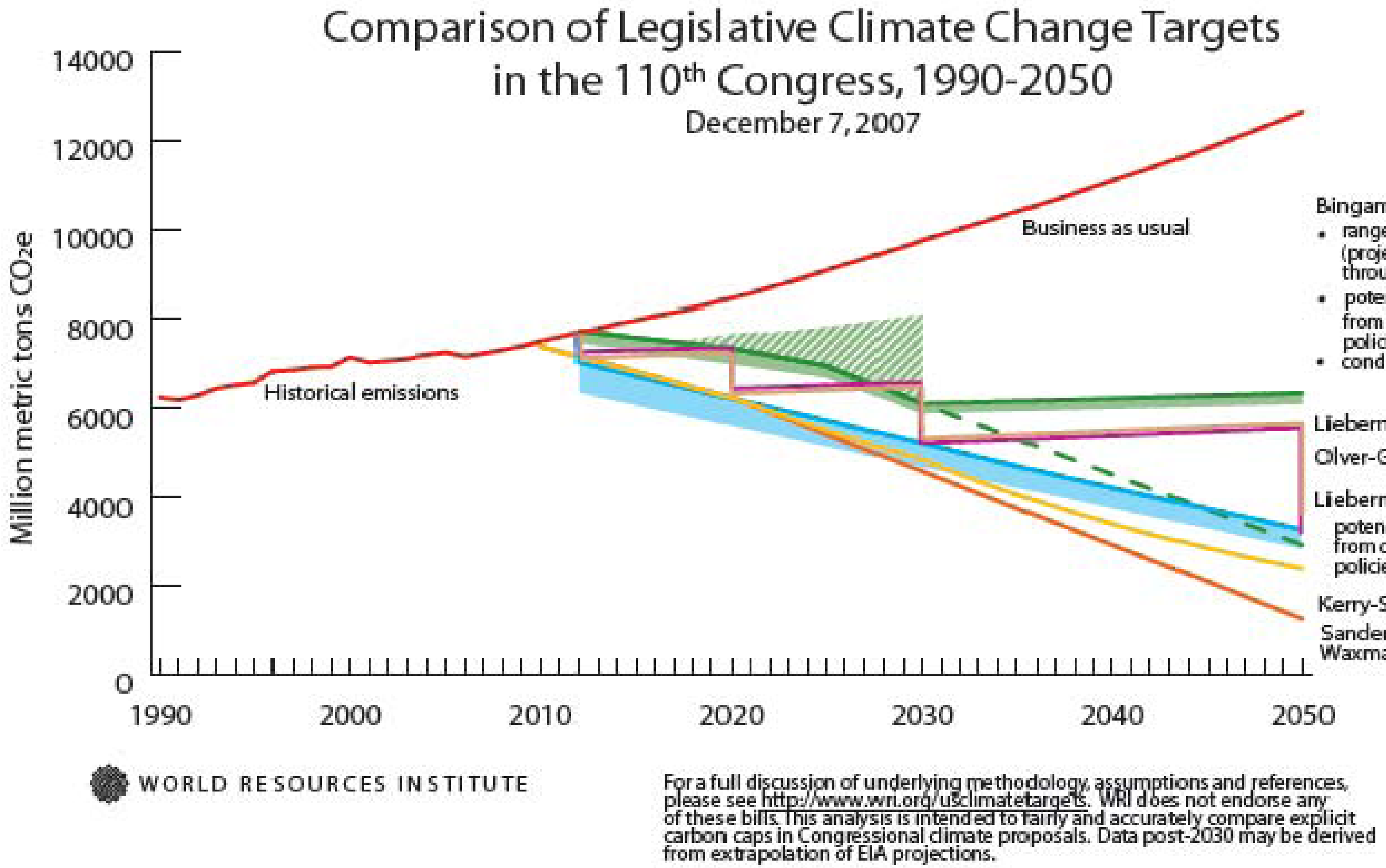
Key Cap and Trade Program Considerations

- Scope of Coverage
  - Electric sector only
  - Multiple sectors – electric, manufacturing, transportation, commercial, residential
- Emission Cap Levels and Timetables
  - Level of reductions
  - Timing of reductions
  - Technology alignment
- Cost Containment Measures
  - Program viability
- Allowance Distribution System
  - Allocate or Auction
  - Emissions or Energy Production – Electric Sector

Scope of Coverage

- Electric sector only
  - Limits the amount of reductions
  - Sixty percent of the country's emissions excluded
- Multi-sector coverage
  - Captures more emissions sources
  - More cost-effective than using multiple stand alone programs

Projected Emission Levels and Timetables



Cost Containment / Oversight

- Complex issue and broad reaching
- Cost of the program will be estimated not known
- Technological answer needed to reduce emissions from coal generation
  - Under development
- Acceptance of program by the American public
- Current options being debated
  - Cap the price of an allowance – “Safety Valve”
  - Establish an Oversight Board that monitors the price of the program

Allowance Distribution System

Allowance = the right to emit one ton of emissions (e.g. Carbon Dioxide (CO_2))

Two Critical Decisions:

- Allocate or Auction
  - Allocate – allowances are provided at no cost by the government
  - Auction – allowances are sold through a bidding process, usually conducted by government
- Emissions or Energy Production – Electric Sector
  - Emissions – allowances are assigned to generation units based on historical emissions. Fossil fueled generation receive allowances.
  - Energy Production – allowances are assigned to generation units based on energy production (MWh). Fossil fueled and non-emitting generation (nuclear, renewables, etc) receive allowances.

In Summary

The New Reality

- Congress is debating the issue – Multiple hearings and proposals
- Legislation is no longer *if*, but *when and how*
- Absent national action, some states / regions have begun their own programs

We have too much at stake to sit on the sidelines

Climate Change Legislation

Robert E. Long, General Manager

Resource Planning, SCANA Services, Inc.

Carbon Legislation

- There were 12 bills introduced in Congress in 2007 with mandates of CO_2 reduction, carbon tax, or cap and trade schemes
- Most remain in committees
- In December, the Lieberman-Warner bill S.2191 was reported favorably to the Senate

Lieberman-Warner Climate Security Act of 2007 (S. 2191)

- Emission cap of 5.775 billion metric tons CO2 for covered sectors and gases in 2012
  - 2012 emissions capped at 2005 level
  - 2020 emissions capped at 1990 level
  - 2050 emissions capped at 70% below 2005 level to 1.732 billion tons
  - Between 2012 and 2050 the cap declines 106 million tons each year

Lieberman-Warner Climate Security Act of 2007 (S. 2191)

- Provision for Allowances
  - Electric Generators
  - Electric and Natural Gas Distributors
  - Sequestration
  - States
  - Industry
  - Climate Change Credit Corporation (for auction)

Lieberman-Warner Climate Security Act of 2007 (S. 2191)

- Mechanisms to Mitigate Cost Impacts of Compliance
  - Trading
  - Banking
  - Borrowing
  - Domestic Offsets




Utility Response to Potential Carbon Legislation

Janice Hager, Managing Director

Integrated Resource Planning and Environmental Strategy

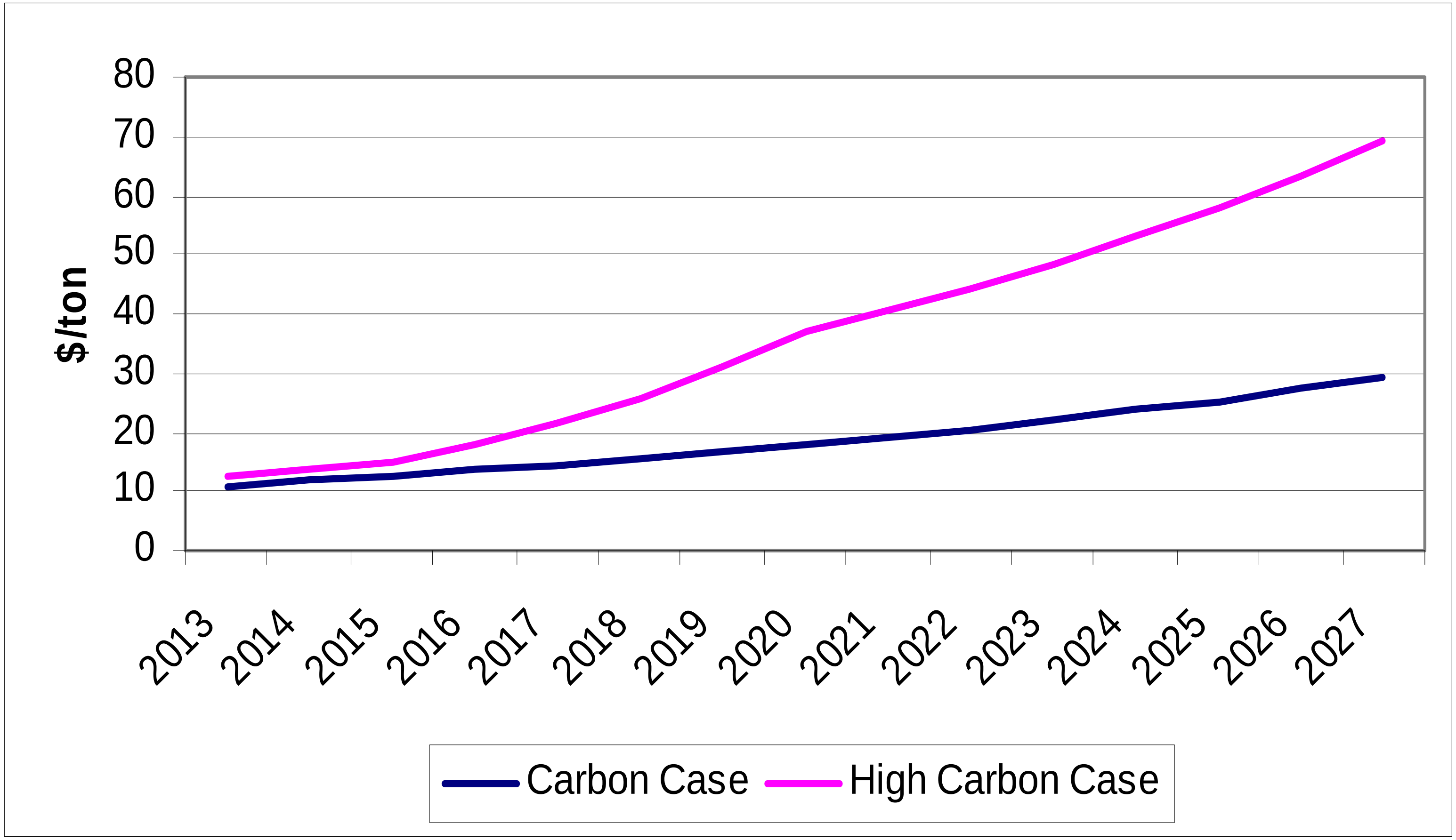
Impact of Carbon Legislation on Planning

- Carbon legislation will result in additional costs for carbon emissions
  - CO_2 prices will increase the cost to dispatch units that emit carbon
- Planners will estimate costs for carbon legislation just as they do for other emissions such as SO_2
- Resource planning models can optimize resource mix with carbon
  - For example, the models may select nuclear over coal, or renewables over gas-fired generation
- Sensitivities may be used to evaluate impact of higher or lower carbon prices
- Resource planning decisions will take into account carbon prices
- Costs to customers will reflect the impact of these decisions
  - For example, the cost of allowances if a cap and trade system is established

Current Actions

- Monitor developments on CO_2 legislation
- Provide information to governmental affairs representatives on impact of various options
- Analyze impacts of CO_2 regulation on resource plans
  - Sensitivities and scenarios with CO_2 prices
  - Seek to ensure plans are flexible
- Example:
  - Duke Energy Carolinas 2007 IRP includes reference case (no carbon) and carbon case (with assumed valued for carbon)
  - Duke Energy Carolinas is pursuing NRC Combined Construction and Operating License for two units at Lee Nuclear Station, in part as a response to potential carbon legislation
  - Carbon price will impact economics of nuclear– the higher the carbon price, the better nuclear generation looks

CO_2 Allowance Prices in Duke Energy Carolinas 2007 IRP






Renewable Portfolio Standards Legislation

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Robert E. Long, General Manager
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Udall Amendment - Renewable Portfolio Standard

- Renewables include:
  - Solar
  - Wind
  - Ocean / Tidal
  - Geothermal
  - Biomass
  - Land Fill Gas
  - Incremental Hydropower

Udall RPS Amendment - Required Renewable Energy

Year	H.R. 3221	H.R. 969
2010	2.75%	1%
2011	2.75%	2%
2012	3.75%	4%
2013	4.50%	6%
2014	5.50%	8%
2015	6.50%	10%
2016	7.50%	12%
2017	8.25%	14%
2018	10.25%	16%
2019	12.25%	18%
2020 – 2039	15.00%	20%

Udall RPS Amendment

- Renewable Energy Credits may be purchased from DOE at lesser of:
  - 3 cents/kWh, adjusted for inflation, or
  - Two (2) times the average market value of renewable credits




Federal Renewable Portfolio Standards

Implications for South Carolina

Progress Energy

Mitch Williams, Manager

Regulatory Affairs, Progress Energy Service Company

SC Renewable Energy Potential

- La Capra Study
  - Completed in September 2007
  - Prepared for Central Electric Power Cooperative
  - Found less potential than some other states
  - Practical potential of about 5,000,000 MWh/year in 10 years
  - About 5% of statewide electricity use
  - Estimated avg. cost of 9 to 14 ¢/kWh

SC Renewable Energy Potential

	%	Cost (¢/kWh)
Wood Biomass	62	9 - 13.5
Ag Waste	10	9 - 13.5
Landfill Methane	10	9
Hydro	18	10 - 18
On-Shore Wind	-	-
Off-Shore Wind	-	12 – 15.5
Solar (PV)	-	16.5 – 50+

Federal RPS Proposals

- One-size-fits-all
- Alternative Compliance Payments
- Penalties
- No off-ramp
- No cost cap

Federal RPS – H.R. 3221

Year	Renewable %
2010	2.75
2011	2.75
2012	3.75
2013	4.5
2014	5.5
2015	6.5
2016	7.5
2017	8.25
2018	10.25
2019	12.25
2020 - 2039	15

Federal RPS – H.R. 3221

- Up to 27% energy efficiency allowed
- Alternative Compliance Payment of 3¢/kWh – escalated for future years
- Non-compliance penalty of 4.5¢/kWh - escalated for future years
- No explicit off-ramp or cost cap

Federal RPS – H.R. 3221

Incremental Cost to SC IOU customers

- Minimum of $265 million/year
  - Assumes max. energy efficiency
  - Alternative Compliance Payment to meet remainder of requirement
  - Sends money to Washington
  - No renewable energy
- Up to $500 million/year
  - Max. energy efficiency
  - Max available renewables at high end of La Capra cost estimate
  - ACP for remaining requirement

North Carolina RPS

- North Carolina is the only Southeastern state with a RPS
- Adopted in 2007 as part of comprehensive energy legislation
- Includes consumer safeguards missing in federal proposals

North Carolina RPS Requirement

Year	%
2012	3%
2015	6%
2018	10%
2021 and thereafter	12.5%

Up to 40% of the requirement in 2021 and thereafter may be met with energy efficiency. Up to 25% prior to 2021.

North Carolina RPS Cost Cap

Annual Cap per Account

	2008 - 2011	2012 - 2014	2015 and thereafter
Residential	$10	$12	$34
Commercial	$50	$150	$150
Industrial	$500	$1,000	$1,000

North Carolina RPS

Other provisions:

- No alternative compliance payment
- No penalties
- Explicit cost recovery through annual rider
- NCUC can modify or delay the requirements

Conclusions

Federal RPS proposals are not good for South Carolina

- Fail to recognize SC circumstances
- Send $ to Washington
- No off-ramp
- No explicit cost cap

RPS Key Considerations

If an RPS is to be considered for SC, it should be by state, not federal, policy makers and should consider:

- Practical renewable energy potential and cost in SC
- Protections for consumers
- An annual cost recovery clause for utilities
- No alternative compliance payments or penalties




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Questions?